Exterity SD Receiver Administrator's Guide

exterity
building IPTV

Notices

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Products Covered By This Guide

- iSocket AV Receiver
- idaptor IPTV Receiver
- idaptor TriplePlay Receiver

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Safety Notices

Before installing and operating these products, please read the safety information in this manual.

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Important Safety Instructions

There are no instructions specifically for service personnel in this document. There are no user serviceable parts inside any Exterity product. To prevent electric shock or fire hazard, do not remove cover. Refer service to qualified service personnel.

This chapter contains important safety information. If you are unsure about any of the information in the section, please contact Exterity.

The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage " within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

USA and Canada

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the instructions contained in this manual.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. The mains plug of the power supply cord shall remain readily operable.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

EU and Others

Do not proceed beyond a **WARNING** notice until you have understood the hazardous conditions and have taken appropriate steps.

Safety Information

WARNING: There are no user serviceable parts inside any Exterity product. To prevent electric shock or fire hazard, do not remove cover. Refer service to qualified service personnel.

WARNING: For 230/240 volt operation, be sure to use a harmonised grounded 3 conductor cord, rated 6 Amp minimum. Use a suitable cord for connection to the equipment and terminating in an IEC approved plug.

WARNING: Use only the dedicated power supply or cord supplied for your device.

WARNING: The Exterity products use ventilation holes for cooling. None of the ventilation holes should be blocked. Keep all materials at least 5cm away from all the ventilation holes.

WARNING: Do not expose the product to any rain or moisture.

WARNING: Do not use the product near a naked flame e.g. a candle.

WARNING: The operating conditions of the product should be 0°C-40°C with a Relative Humidity of 5 – 95%. The product should not be operated outside of these conditions.

There are no user-serviceable parts inside these products. Any servicing, adjustment, maintenance, or repair must only be performed by service-trained personnel.

About this Manual

Summary

This manual explains how to set up, use and manage the Exterity SD Receiver (the "receiver"). The Receiver is a network device which picks up an MPEG stream from an IP network and outputs it on a television or display. This manual should be used in association with the *Exterity Installation Guide*.

Scope

This edition of the manual refers to version 3.1.x of the receiver software. The following products are covered:

- iSocket AV Receiver
- idaptor IPTV Receiver
- idaptor TriplePlay Receiver

Audience

This manual is intended for use by systems integrators or systems administrators who are installing and setting up Exterity products. The manual assumes that readers are familiar with installing and configuring network-based products.

Terms and definitions

The following terms and definitions are used in this document:

Composite video – A type of analogue video signal where the luminance, chrominance and sync signals are all carried on a single cable. This is often referred to as CVBS.

DHCP – Dynamic Host Configuration Protocol, a protocol used to allocate IP addresses to devices on an IP network.

IGMP – Internet Group Management Protocol, a protocol used to manage multicast traffic on an IP network.

IP – Internet Protocol, a protocol used for communicating data across a network using the Internet Protocol Suite, also referred to as TCP/IP.

MPEG – A family of compression methodologies for audio and video.

MPEG Transport Stream – a communications protocol enabling multiplexing of digital audio, video and data which is specified in MPEG-2 Part 1, Systems (ISO/IEC standard 13818-1).

NTP – Network Time Protocol, a protocol for synchronizing the clocks of computer systems.

POE – Power Over Ethernet, a system to transfer electrical power, along with data, to remote devices over standard twisted-pair cable in an Ethernet network.

RGB – A type of component analogue video signal consisting of three signals - red, green, and blue - carried on three separate cables.

RGBS – A specific type of RGB where the video sync signal is carried on a fourth cable.

RTSP – Real Time Streaming Protocol, an application-level protocol for control over the delivery of data with real-time properties.

RTP – Real-time Transport Protocol, a protocol used to carry real time data on an IP network.

SAP – Session Announcement Protocol, a protocol used to advertise the presence of multicast sessions on an IP network.

S-Video – also known as Y/C, is an analogue video signal that carries the video data as two separate signals, luminance and chrominance.

TFTP – Trivial File Transfer Protocol, a simple file transfer protocol used on IP networks.

UDP – User Datagram Protocol, a transport protocol in the TCP/IP suite, providing a connectionless transport mechanism with low overhead.

YPbPr – A type of component analogue video signal consisting of a colourless component (luminance), combined with two colour-carrying components (chrominance). This is commonly referred to simply as "component".

How this manual is organised

This manual is organised as follows:

Section 1 – Receiver Concepts	This section provides an introduction to the capabilities of the Exterity receiver.
Section 2 – Product Description	This section describes how to connect your receiver to the power supply and television/display.
Section 3 – Device Setup	This section describes basic aspects of setting up your receiver.
Section 4 – General Use	This section describes how to perform basic operations with the receiver, such as selecting channels and controlling remote devices.
Section 5 – Management Interface	You can manage the receiver using the IPTV Manager, web management interface and admin interface. These are described in this section.
Section 6 – Device Management	This section provides detailed information on the configuration options available with the web management interface.
Section 7 – Admin Interface	This section describes how to use the serial admin interface.
Section 8 – Troubleshooting	Review this section if you are having problems.

1 Receiver Concepts

General

The Exterity Receiver is a network device which picks up an MPEG stream from an IP network and outputs it on a television or display. Streams from Exterity TVgateway, Encoder and avediaServer products are supported, as well as streams from third party equipment.

Power

The receiver can be powered using the external power supply supplied by Exterity.

In addition, the POE variant of the receiver can be powered through the network interface from an 802.3af compliant network switch.

Network considerations

The most common type of stream played on an Exterity receiver is a multicast stream from an Exterity TVgateway or Encoder. In order for this to work satisfactorily, it is vital that the network switches are multicast-enabled in order to prevent unwanted flooding of traffic on the network.

For these purposes, "Multicast-enabled" is understood to mean that all network switches carry out IGMP snooping, and one switch must function as the IGMP querier.

Exterity receivers support version 2 of IGMP.

Stream playback

The receiver can play MPEG2 transport streams carried over a UDP or RTP transport. Multicast and unicast streams are supported.

In addition, it is possible to play back files hosted on a web server using HTTP. The receiver can play MPEG2 TS and MPEG2 PS files using this mechanism.

It is also possible to play onDemand streams, using RTSP to set up the stream.

In all cases the receiver is capable of playing streams with video/audio format:

- MPEG2 video
- MPEG1 layer II audio.

Channel discovery

The default mechanism of channel discovery used by the receiver is to listen for SAP announcements from Exterity TVgateways, Encoders and other third-party streaming equipment.

It is also possible to use an XML channel list hosted on a web server.

See the section on **Channel learning** within **Section 6 - Device Management** for more details.

Web browser

The receiver has the ANT Galio web browser built in. This enables the administrator to set up on-demand streams or HTTP file playback via a web portal.

Note: Receiver firmware earlier than V3.x includes the ANT Fresco browser instead.

See the following sections for details on use of the web browser:

- **Using the web browser** in **Section 4 - General Use**
- **Browser** in **Section 6 - Device Management**
- **APPENDIX A Browser Development Guide**

Remote control

A remote control handset is available to allow the user to control the receiver i.e. selecting channels, controlling volume, etc.

The default functionality of buttons on the remote control is described in **Section 4 - General Use**. It is possible for the administrator to alter/disable the use of the function buttons, allowing the remote control capability to be customised to the needs of a particular installation. For example, the HOME button could be disabled if it is not desired to use the web browser. See the **Remote Control** section in **Section 6 - Device Management**.

TriplePlay receiver

The TriplePlay Receiver has an internal Ethernet switch chip, allowing two additional network devices to be connected to the network through the receiver.

The receiver must be connected to the network switch using the port marked **Ethernet 0**. The ports marked **Ethernet 1** and **Ethernet 2** can be used for another network device e.g. a PC.

On the POE variant of the TriplePlay receiver, port **Ethernet 1** is capable of powering an 802.3af compliant device e.g. an IP phone. The maximum power output on **Ethernet 1** is 6.5W.

The TriplePlay receiver allows the use of 802.1q VLANs on its switch ports. See the section on **VLANs** in **Section 6 - Device Management** for more details.

Device administration

A receiver can be configured and managed using one of three mechanisms:

- **Web Interface:** Allows full configuration of device capabilities.
- **IPTV Manager:** Windows application which allows a subset of device capabilities to be managed.
- **Admin Interface:** Allows fundamental capabilities of the device to be configured through the serial admin port.

The following sections of this manual describe device configuration and management using the above mechanisms.

2 Product Description

Product Family

The SD receiver family comprises three different products as described below.

idaptor IPTV Receiver

The idaptor IPTV receiver supports Composite, RGBS and YPbPr video over its SCART interface and is pictured in Figure 1 and Figure 2.

Figure 1 idaptor IPTV Receiver Front Panel

Figure 2 idaptor IPTV Receiver Rear Panel

idaptor TriplePlay Receiver

The TriplePlay receiver has Phono interfaces supporting Composite, RGBS and YPbPr output and also has an S-Video interface. It also has two additional Ethernet interfaces for connecting other devices to the network. It is pictured in Figure 3 and Figure 4.

Figure 3 idaptor TriplePlay Receiver Front Panel

Figure 4 idaptor TriplePlay Receiver Rear Panel

isocket IPTV Receiver

The isocket IPTV Receiver is designed to fit in a wall socket and is pictured in Figure 5. It supports Composite, RGBS and YPbPr video over its SCART interface. The Ethernet and admin interfaces (not pictured) are behind the front panel facing upwards.

Figure 5 isocket IPTV Receiver

Physical Interfaces

The physical interfaces present on each member of the SD receiver family are summarised in Table 1. Each interface is described in more detail below.

	idaptor IPTV Receiver	idaptor TriplePlay Receiver	isocket IPTV Receiver
Power Jack	✓	✓	✓
Ethernet 0	✓	✓	✓
Admin	✓	✓	✓
SCART	✓		✓
S-Video		✓	
Phono Video (Composite)		✓	
Phono Video (Component)		✓	
Phono Audio		✓	
Serial TV		✓	
IR Out	✓		
IR eye/IR jack	✓	✓	✓
Ethernet 1 & 2		✓	
LED	✓	✓	✓

Table 1 Physical Interfaces

Power Jack

The receiver can be powered through the power jack using the power adaptor supplied by Exterity. All SD receiver models use a 5V/1300mA power supply.

Ethernet Port 0

Ethernet 0 is a 10/100 Mbps interface used to connect the receiver to the network switch using a standard straight-through Cat 5 cable.

POE variants of the receiver can be powered through this interface by an 802.3af compliant PSE.

Admin

The admin interface is a serial RS232 interface used to configure basic device capabilities and to troubleshoot problems. For details on using this interface see Section 7: Admin Interface and APPENDIX D: Admin interface connection.

SCART

Use a standard SCART cable to output audio/video from this interface to a television/display. Video format can be Composite, RGBS or YPbPr.

Phono Video Interfaces

Use standard phono cables to output video to televisions/displays as follows:

Composite Video: Connect the Composite output to the Composite input on the television.

Component Video: Connect the Y, Pb and Pr outputs to the similar-marked inputs on the television.

RGB Video: Connect the Y, Pb and Pr outputs to the television's Green, Blue and Red inputs respectively. Connect the Composite output to the sync input on the television.

SVideo Interface

Use a standard SVideo cable to connect this interface to the SVideo input on the television.

Phono Audio Interfaces

Use standard phono cables to connect left/right analogue audio outputs to the similar-marked inputs on the television/display.

Serial TV

This RJ45 interface is used to allow the receiver to communicate with a serial-controllable television. The interface wiring is shown in APPENDIX E. Contact your Exterity supplier for more details on supported televisions.

IR Out

This interface is used to allow the receiver to control a television using infra-red. If this functionality is required, contact your Exterity supplier to obtain an IR transmitter.

IR eye

On units with a built-in IR eye, simply point the remote control handset at the eye on the front of the unit in order to control the receiver.

IR jack

Connect the IR extender cable or tethered remote control to the IR jack to enable the user to control the receiver using the remote control handset.

Ethernet Ports 1 & 2

The TriplePlay model provides two 10/100 Mbps Ethernet ports to allow other devices (e.g. PC, IP phone) to be connected to the main network. Devices should be attached to these ports using a standard straight-through Cat 5 cable.

If the receiver itself is powered using POE, Ethernet 1 provides power over Ethernet (POE) out up to 6.5W using the 802.3af standard. Ethernet 2 is a standard, non-powered port.

LED

The status LED (blue on idaptor variants and green on iSocket variants) lights when the receiver is switched on. The LED behaviour is as shown in Table 2.

Function	LED activity
Start-up	Several rapid flashes – off for 18 seconds – blinks once per second for 5 seconds
Acquiring network link	2x per second
Acquiring IP address via DHCP	4x per second
Standard operation (Default LED status: On)	Always on, blinking off briefly on reception of IR from the handset.
Standard operation (Default LED status: Off)	Always off, blinking on briefly on reception of IR from the handset.

Table 2 LED Behaviour

Note: The default LED status is a configurable option. See Section 6: Device Management for more details.

3 Device Setup

The receiver is configured such that there is no need to use the management interface before operation. The next two sections describe how end users can operate the receiver. For information on how to configure and manage the receiver, refer to **Section 5 – Management Interface** and **Section 6 – Device Management**.

Before reading this section, ensure that:

- The receiver is powered on.
- The receiver is attached to a multicast-enabled network.
- The network containing your receiver has a DHCP server.
- The infra-red receiver is connected.
- The receiver is attached to a television or display.

Receiver start-up

The receiver start-up process consists of two stages:

- Assigning an IP address to the receiver
- Connecting to a channel (if receiver in Audio/Video mode)

When you switch the receiver on, a splash screen is displayed on the television or display, and the receiver attempts to obtain an IP address. The following message appears:

```
Configuring network interface
```

The receiver's LED flashes twice per second while waiting for a network link, then 4 times per second while carrying out the DHCP transactions.

Note: By default, the receiver requires a DHCP server to be available on the network to assign it an IP address. Once an IP address is assigned to the receiver, you can configure a static IP address using the management interface. This is described on page 15. A static IP address allows the receiver to operate without a DHCP server.

When an IP address has been allocated to the receiver, the LED enters its default status as configured in the web interface. If default status is **On**, the LED stays on constantly, blinking off in response to input from the remote control handset. If default status is **Off**, the LED stays off constantly, blinking on in response to input from the remote control handset.

The first time the receiver starts up, it is set to Audio/Video mode by default, and therefore tries to connect to a channel. One of the following messages is displayed temporarily until a channel is found:

```
No channels available
```

```
This channel is not available
```

The channels list is collected automatically using announcements from head-end devices. This process takes approximately 1 minute.

On subsequent start-ups the receiver attempts to reconnect to the channel it was connected to previously.

Screen type setup

You can set the size of display that the receiver is connected to as follows:

1. Access the **Mode** menu using the **MODE** button on the remote control. Refer to **Section 4 – General Use** for information about the remote control.
2. Navigate between fields using the ▲/▼ buttons.
3. Toggle settings using the ◄/► buttons.

You can control the following settings:

Screen Type	This setting tells the receiver whether it is connected to a conventional (4:3) or widescreen (16:9) television or display.
Aspect Ratio	When connected to a conventional (4:3) television or display, this setting controls how a widescreen signal is displayed. There are two options: **Centre** – Displays the centre of the widescreen image. The left and right outside margins of the picture are lost. **Letterbox** – Displays the complete widescreen image with black bars at top and bottom.

Settings Screen

The settings screen displays information about the device including its name, IP address and firmware version. This may help the administrator identify individual devices.

To display the settings screen, press **MODE** and then **PLAY** on the remote control handset. To remove the settings screen, press **PLAY** to return to the **Mode** menu, or press **MODE** to hide the menu completely.

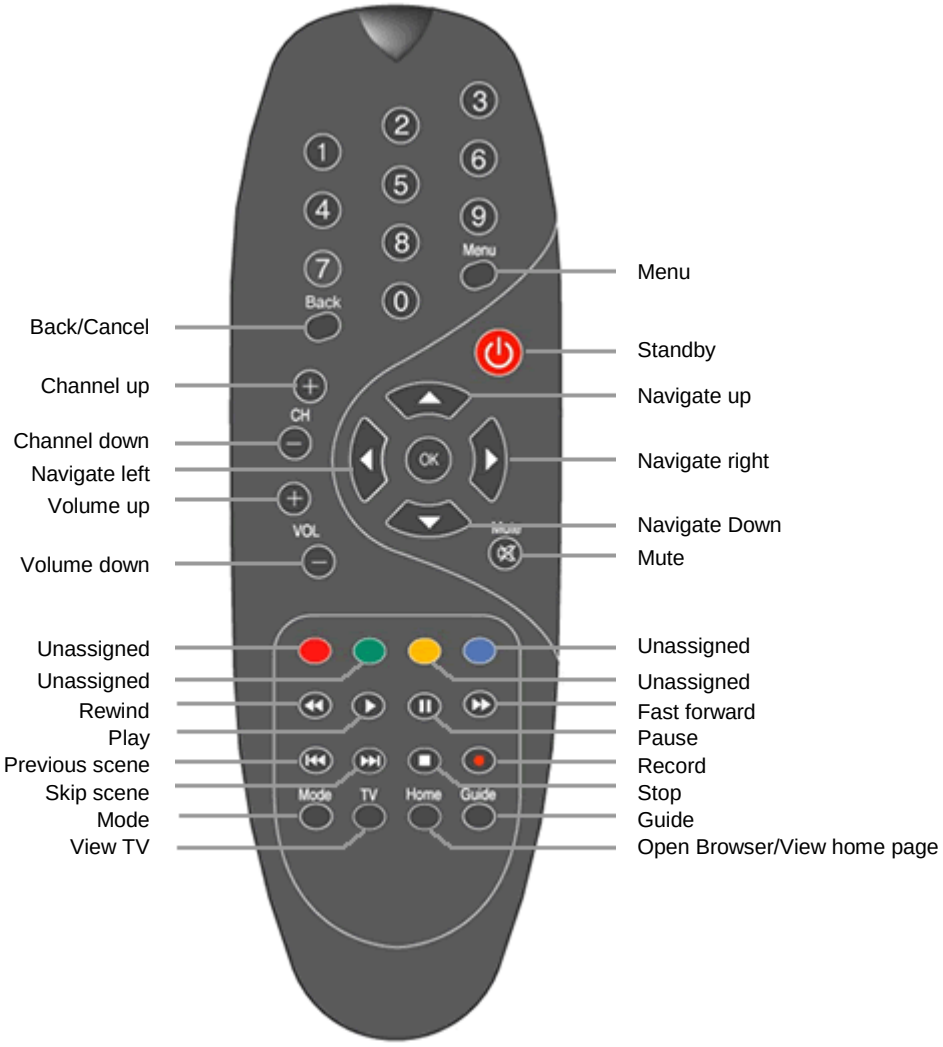
4 General Use

This section describes how to carry out general operations on the receiver. As with Section 3, the content of this section is particularly relevant to end users. This section describes:

- The remote control
- Viewing channels
- Using the web browser
- Controlling remote AV devices

The remote control

The receiver remote control is shown below:



Viewing channels

The channels list is built at start-up by listening to Session Announcement Protocol (SAP) announcements from server devices. This is an ongoing process and channels are added to and removed from the list as server devices are added and removed.

You can view and select channels using the receiver remote control:

To view television channels, use the **TV** button.

To display the list of channels, use the **MENU** button.

To navigate the list of channels, use the ▲/▼ buttons.

To select a channel, use the **SELECT** button.

To select a numbered channel directly, press its number.

To change up or down between channels, use the **CH-** and **CH+** buttons

To adjust the volume, use the **VOL-** and **VOL+** buttons.

To mute the sound, use the **MUTE** button.

To pause, rewind or fast-forward an onDemand stream, use the **PAUSE**, **REWIND** or **FAST FORWARD** buttons respectively.

To resume normal playback of an onDemand stream, use the **PLAY** button.

Standby

The receiver can be put into standby by pressing the **STANDBY** button on the remote control. This will turn off all audio/video outputs to the television or display. A subsequent press of the **STANDBY** button will turn the audio/video outputs back on and the last viewed channel will resume playing (unless an alternative startup mode has been specified; see the **Display** section of this manual).

Subtitles

The display of subtitles on a TV channel can be enabled/disabled using the remote control as follows:

1. Display the **Mode** menu using the **MODE** button on the receiver remote control.
2. Select **Subtitles** using the ▲/▼ buttons and use the ◄/► buttons to choose the desired option.
3. Press **MODE** again to hide the menu.

Note: Only DVB subtitles are supported.

Audio Language Selection

Some TV channels have multiple audio streams in different languages. The audio language can be selected using the remote control as follows:

1. Display the **Mode** menu using the **MODE** button on the receiver remote control.
2. Select **Audio Track** using the ▲/▼ buttons and use the ◄/► buttons to choose the desired language.
3. Press **MODE** again to hide the menu.

Using the Web browser

If configured, you can view browser content on your television or display. You can control how pages are displayed using the web management interface, as described later in this manual. For example, you can define a home page to display when the browser opens, and you can specify whether pages display with a menu bar.

The ANT browser is used to display web content.

You can control the browser using the receiver remote control as follows:

To open a browser window, press the **HOME** button.

To return to the home page, press the **HOME** button.

To navigate between links (if available), use the ▲/▼ buttons.

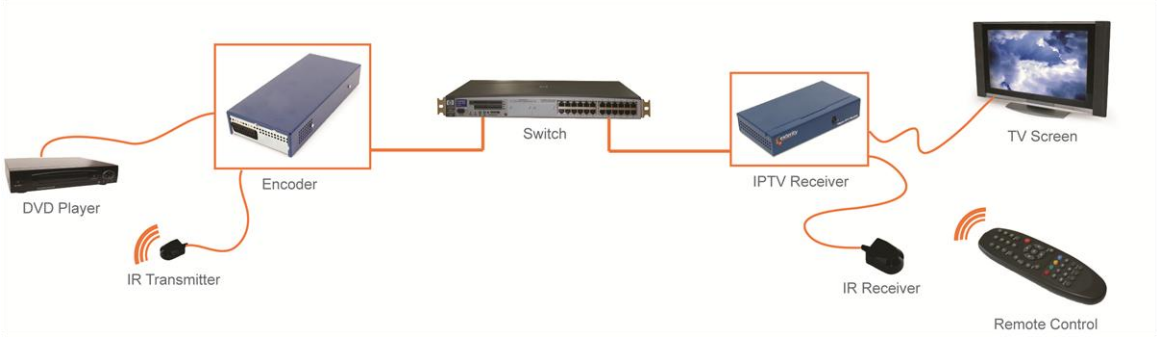
To select a link, press the **SELECT** button.

Controlling remote AV devices

The receiver can send remote control button commands across a network to Exterity Encoders, where they will then be sent on to the attached AV device.

This functionality is illustrated in the diagram below where, for example, the remote control handset could be used to play/pause/stop the DVD player.

Note: The remote control configuration file for the remote device must be present on the Encoder. Also, the Encoder must be properly configured as described in the *Encoder Administrator's Guide*.



To control remote AV devices:

1. This feature is disabled by default. To enable it, enable **Remote Device** Control as described in **Section 6 – Device Management**.
4. Display the **Mode** menu using the **MODE** button on the receiver remote control.
5. Select **IR Controls** using the ▲/▼ buttons and change the setting to **AV Source**.

   If the remote device allows this functionality, a small icon appears in the top right corner of the screen.
6. Press **MODE** again to hide the menu.

You are now using Remote Device mode. All button commands (except **MODE**) are sent across the network to the remote device.

To return to normal operation:

1. Display the **Mode** menu using the **MODE** button on the remote control.
2. Select **Normal** in the **IR Controls** box.

5 Management Interfaces

The receiver has three management interfaces as follows:

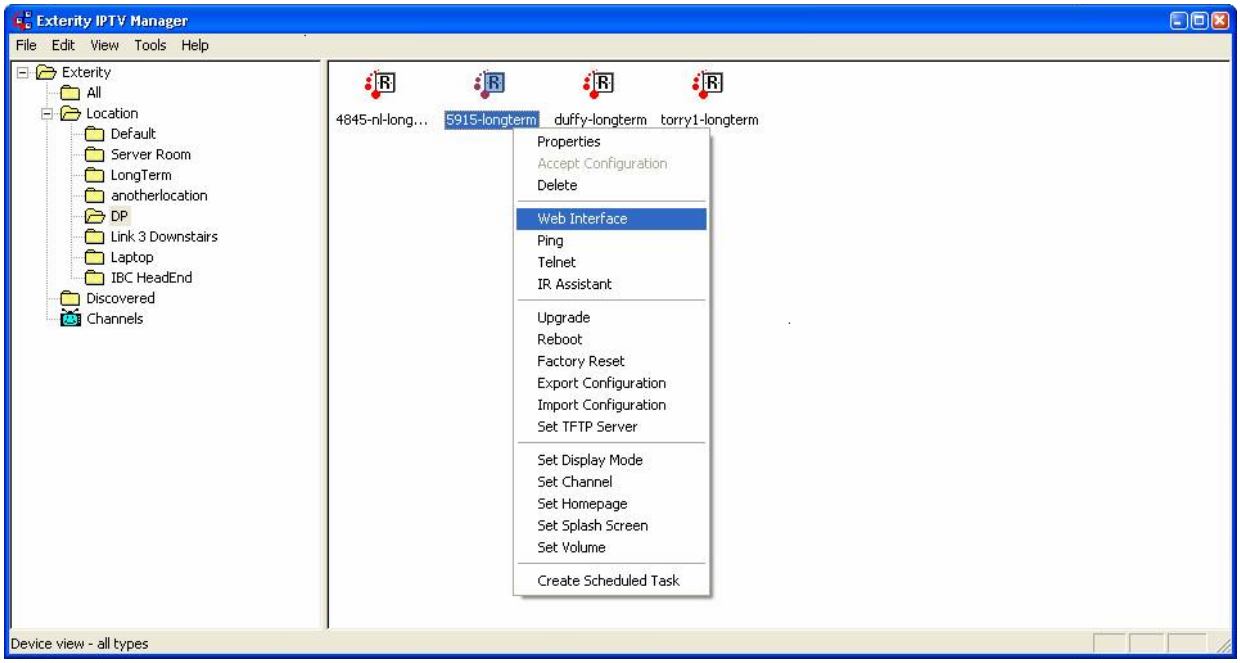
- IPTV Manager
- Web Interface
- Admin Interface

IPTV Manager

The IPTV Manager is a Windows application which discovers Exterity devices on the network and uses SNMP to manage a subset of device functionality. It can also be used to start the device web interface as shown below.

Note: You can also use a third-party SNMP tool to manage the receiver. Contact Exterity to obtain the Management Information Base (MIB).

For more details on managing receivers with the IPTV Manager, see the associated manual.



Web Interface

You can manage every aspect of the receiver's functionality using the receiver's web management interface.

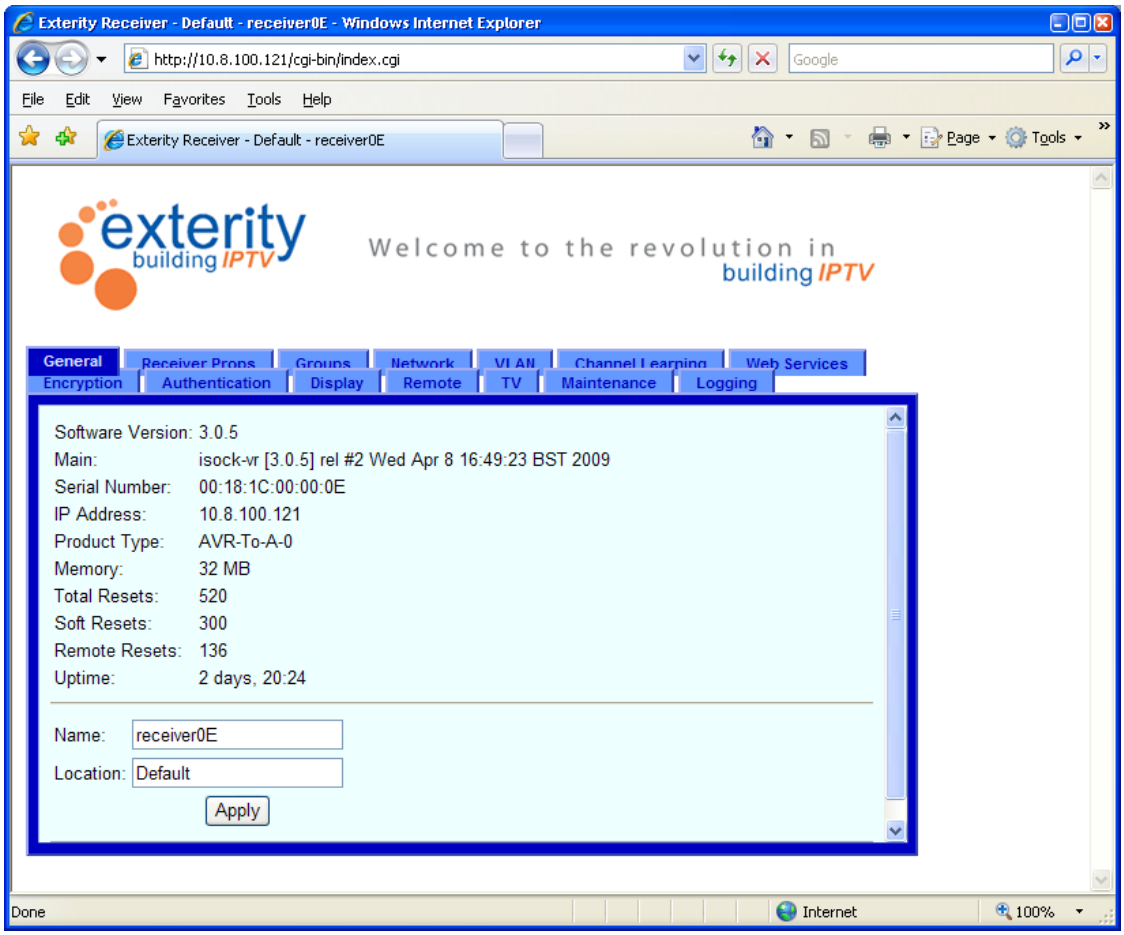
You can display the web management interface using the IPTV Manager as shown above, or by typing the receiver IP address directly into your browser:

Use the web management interface as follows:

1. When prompted, enter the correct username and password. The default login details are:

   Username: admin
   Password: labrador

2. The web management interface opens in your browser:



3. Navigate through the tabs, changing settings as appropriate. Click **Apply** on each tab to save your changes.

Section 6 – Device Management describes the web management interface options in detail.

Authentication

You can control access to the web management interface by changing the login.

To allow access to all users, click on the **Authentication** tab and select **Allow Web Access to All Users.**

To allow access only to certain users by setting a password:

1. Click on the **Authentication** tab.
2. Select **Authenticate Web Access**.
3. Specify a password and click **Apply**.

Admin Interface

In certain circumstances it may not be possible to manage a receiver via its web interface. For these situations a text based admin interface is provided which is available via the serial interface (marked admin on the rear panel of the unit) or via telnet.

For details on use of the admin interface, see **Section 7 - Admin Interface**.

6 Device Management

This section of the manual describes how to manage the receiver using the web management interface. All procedures described in this section assume that you are running the web management interface, as described in **Section 5 – Management Interface**.

Note: When making changes using the web management interface, click **Apply** to save your changes on each tab before moving to another tab, otherwise your changes will be lost.

General

The **General** tab displays hardware and software information about the device you are using and allows you to name the device and its location.

To specify a name for the device:

Enter the name into the **Name** box and click **Apply**. The name you specify is used to identify the device on a management station.

To specify a location for the device:

Type the name of a location into the location folder and click **Apply**.

The location you specify is used by the IPTV Manager to organise devices into folders. For example, if you specify **Group 1**, the device appears in **`Location\Group 1`** in the IPTV Manager.

Receiver Properties

You can configure various settings that affect how video is output from the receiver.

Screen format

You can specify whether the receiver is connected to a conventional (4:3) or widescreen (16:9) television or display.

This setting can also be changed by the user using the **MODE** button on the remote control.

To set the screen format:

1. Click on the **Receiver Properties** tab.
2. Select an option from the **Screen Format** box.
3. Click **Apply**.

Aspect ratio

When connected to a conventional (4:3) television or display, the aspect ratio setting controls how a widescreen signal is displayed. There are two options:

- **Centre** – Displays the centre of the widescreen image. The left and right outside margins of the picture are lost.
- **Letterbox** – Displays the complete widescreen image with black bars at top and bottom.

This setting can also be changed by the user using the **MODE** button on the remote control.

To set the aspect ratio:

1. Click on the **Receiver Properties** tab.
2. Select an option from the **Aspect Ratio** box.
3. Click **Apply**.

Video interface

You can set the format of video that the receiver outputs to the television or display. The following settings will be available as appropriate for the particular product:

- **Composite**
- **RGB**
- **S-Video**
- **Component (YPbPr)**

To set the video interface:

1. Click on the **Receiver Properties** tab.
2. Select an option from the **Video Interface** box.
3. Click **Apply**.

Splash screen

You can specify an image to be displayed as a splash screen when the receiver is turned on. The splash screen is also displayed if the receiver fails to connect to a stream or when an audio-only channel is being played. The image is stored on the TFTP server and can be `.jpg`, `.gif` or `.png` file format.

When creating a splash screen image, restrict the image to a resolution of **720 x 576** pixels and a maximum of **32-bit** colour quality.

To specify the image used for the splash screen:

1. The receiver uses TFTP to download new splash screen images from a TFTP server. To update the splash screen, first ensure that the correct TFTP server IP address is specified in the **Maintenance** page, and that the TFTP server is running.
2. Click on the **Receiver Properties** tab.
3. Enter the name of the image file, including the file extension, into the **Splash Screen** box.
4. Click **Apply**. The splash screen file will now be downloaded from the TFTP server.

Screen Saver

You can specify the length of time the splash screen or a static icon is displayed before the screen is blanked or the icon removed. For example, if a radio channel is being played and the splash screen is displayed, the screen can be blanked after a specified wait period. Similarly, an icon such as 'mute' can be removed after the specified wait period, even if motion video is being played.

To specify and set the screensaver wait time:

1. Click on the **Receiver Properties** tab.
2. Enter the **Wait**: value required (in minutes).
3. Check the **Screen Saver** box.
4. Click Apply.

Audio Volume

You can set the level of audio volume output from the receiver. This is a value between 0 (min volume) and 40 (max volume).

To set the audio volume:

1. Click on the **Receiver Properties** tab.
2. Enter a value between 0 and 40 in the **Audio Volume** box.
3. Click **Apply.**

Audio Language Selection

Some TV channels have multiple audio streams in different languages. The receiver can be configured with a default audio language. If a channel contains an audio stream of this language it will be selected, otherwise the first language found will be selected.

The default audio language can be chosen from the currently playing channel, or by specifying an ISO639 code.

To set the audio language from the current channel:

1. Click on the **Receiver Properties** tab.
2. Select the **Choose language from current channel** radio button.
3. Choose an option from the **Language** drop down list.
4. Click **Apply**.

To set the audio language using an ISO639 code:

1. Click on the **Receiver Properties** tab.
2. Select the **ISO639** radio button.
3. Enter the two or three character ISO639 code for the language.
4. Click **Apply**.

The audio track can also be selected using the remote control as follows:

1. Display the **Mode** menu using the **MODE** button on the receiver remote control.
2. Select **Audio Track** using the ▲/▼ buttons and use the ◄/► buttons to choose the desired option.
3. Press **MODE** again to hide the menu.

Subtitles

DVB subtitles can be displayed if present within a channel stream. The subtitles can be enabled/disabled using the remote control handset (see **Section 4 - General Use**) or from the web interface.

To enable/disable subtitles using the web interface:

1. Click on the **Receiver Properties** tab.
2. Select an option from the **Subtitles** box.
3. Click **Apply**.

Default LED Status

The main LED on the front of the receiver can be configured to have default mode **On** or **Off** .If default status is **On**, the LED stays on constantly, blinking off in response to input from the remote control handset. If default status is **Off**, the LED stays off constantly, blinking on in response to input from the remote control handset.

To set the default LED status:

1. Click on the **Receiver Properties** tab.
2. Select an option from the **Default LED Status** box.
3. Click **Apply**.

Network

This section describes receiver options relating to network connections.

Receiver IP addressing

You can configure the receiver to obtain an IP address automatically using DHCP, or you can specify static addressing information, such as IP address, subnet mask and default gateway.

Note: For software prior to V2.3.0, changes to IP addressing do not take place until after the device has restarted.

To configure the receiver to be allocated an IP address automatically:

1. Click on the **Network** tab.
2. Click **Obtain an IP Address automatically**.
3. Click **Apply**.

To configure a static IP address:

1. Click on the **Network** tab.
2. Click **Use the properties below**.
3. Specify values for **IP Address**, **Subnet Mask**, **Default Gateway**, **Preferred DNS Server**, **Alternate DNS Server**.
4. Click **Apply**.

Ethernet settings

The receiver can automatically negotiate any combination of 10/100 Mbits/sec and half/full duplex with an Ethernet switch. However, in certain situations it may be desired to limit the interface to 10Mbits/sec with auto-negotiation enabled, or to specify fixed speed/duplex settings with auto-negotiation disabled.

The default setting is 100Mbps full duplex with auto-negotiation.

Note: It is important to make sure that the receiver settings match the settings on the switch port to which the receiver is connected. i.e. if auto-negotiation is enabled on the receiver it must also be enabled at the switch. If a fixed setting has been configured on the receiver, that same fixed setting must be configured on the switch. Failure to do this may result in dropped packets which in turn may cause poor quality video output.

To specify Ethernet settings:

1. Click on the **Network** tab.
2. In the **Ethernet Settings** section, choose an option from the **Mode** dropdown box as required. For the TriplePlay receiver, choose an option from the dropdown box for the appropriate interface. Valid options are **Auto**, **Auto-10**, **100FD**, **10FD**, **100HD**, **10HD**.
3. Click **Apply**.

VLAN configuration

The options described in this section allow you to set up 802.1q VLANs on the internal switch chip on the TriplePlay receiver. This section is only relevant to the TriplePlay receiver.

The page allows you enable the use of 802.1q VLANs and to set VLAN IDs for each port.

The port **Ethernet 0** must be the uplink to the main network, and is configured as a VLAN trunk port. This means that packets with a VLAN tag are transmitted tagged on this port, with the exception of packets on the configured Native VLAN, which are transmitted untagged.

The ports **Ethernet 1** and **Ethernet 2** are the ports to which additional network devices are attached. Outgoing traffic is transmitted untagged on these ports, while incoming traffic is tagged with the configured VLAN ID.

The **Host** port is the switch port to which the actual receiver is attached i.e. this is the port on the switch which passes streaming and management traffic to the receiver. Like ports 1 and 2, outgoing traffic is transmitted untagged on this port, while incoming traffic is tagged with the configured VLAN ID.

To enable the use of VLANs:

1. Check the **Enable 802.1Q VLAN Support** box.
2. Enter the **Native VLAN** ID. This should match the Native (Default) VLAN ID of the main network.
3. Enter VLAN IDs for **Ethernet 1, Ethernet 2** and **Host** as required.
4. Click **Apply**.

Channel learning

The options described in this section allow you to control how the receiver finds and displays channel information.

Channel List Types

The receiver can use two mechanisms to build its list of channels: **SAP** (default) and **XML**. The channel list function can also be switched off entirely.

To set the channel list type:

1. Click on the **Channel Learning** tab.
2. Select the radio button for the required channel list type (**SAP**, **XML**, or **None**).
3. Click **Apply**.

SAP Channel List

In SAP mode, the channel list is built up from SAP (Session Announcement Protocol) announcements generated by Exterity Encoders, TV Gateways and other compatible products.

By default, the receiver listens for these announcements on the multicast address 239.255.255.255. If there are devices on the network sending announcements to another IP address, you can configure the receiver to listen for these announcements by adding the IP address to the SAP Announcement Multicast Address table.

To set an additional multicast address:

1. Click on the **Channel Learning** tab.
2. Enter the new IP address into the **Add new multicast address** box.
3. Click **Apply**.

Groups

The available channels across a network of Exterity devices can be split into groups of similar type. For example, you might have a group of Sports channels and a group of Children's channels. Channels are assigned to group(s) by Exterity Encoders and TV Gateways. The groups are included as part of the SAP announcements sent by these devices.

If you do not configure any groups on a receiver (i.e. receiver is in the "all" group), then all channels are available from the channels menu on that receiver. Configuring one or more groups on a receiver means that only channels in those groups are listed in that receiver's channels menu.

To add the receiver to a channel group:

1. Click on the **Groups** tab.
2. Enter the group name into the **Add device to new group** box and select the check box.
3. Click **Update Group Membership**.

XML Channel List

In XML mode, the channel list is an XML file which the receiver downloads from a web server. To ensure the list is up to date, the receiver downloads the file at an interval specified by the administrator.

The format of the channel list is described in APPENDIX C.

To set the channel list URL:

1. Click on the **Channel Learning** tab.
2. Enter the URL into the **Channel List URL** box.
3. Click **Apply**.

To set the refresh interval:

1. Click on the **Channel Learning** tab.
2. Enter the interval in minutes into the **Refresh Interval** box.
3. Click **Apply**.

Browser

Use the options described in this section to control the use of the ANT web browser. Use the **browser** settings to set up a generic home page or to allow access to a user interface such as Exterity's avediaServer Portal. Use the EPG settings to set up EPG browsing using Exterity's avediaServer EPG module.

Browser Mode

The receiver opens the browser in Browser mode when the **Display Mode** setting is changed to **Browser** using the web interface or IPTV Manager or at start-up, or when the user presses the appropriate button on the remote control handset (by default the **HOME** button).

You can define a home page that is displayed each time the browser is accessed and you can control whether the browser toolbar is visible (useful if the intention is to allow full internet browsing). You can also specify the size of the browser window; either 640x480 centred on the screen (useful if accessing internet pages) or 720x576 taking up the full screen (useful if accessing a dedicated service such as Exterity's avediaServer Portal interface).

To set a browser home page:

1. Click on the **Web Services** tab.
2. Enter the URL of the web page into the **Homepage** box. For example, **www.exterity.co.uk**.
3. Click **Apply**.

To control whether the browser toolbar is visible:

1. Click on the **Web Services** tab.
2. Select or clear the **Show Toolbar** check box as required.
3. Click **Apply**.

To control the size of the browser window:

1. Click on the **Web Services** tab.
2. Select the required setting in the **Dimensions** dropdown menu.
3. Click **Apply**.

EPG Mode

The receiver opens the browser in EPG mode when the **Display Mode** setting is changed to **EPG** using the web interface, IPTV Manager or at start-up, or when the user presses the appropriate button on the remote control handset (by default the **GUIDE** button).

In EPG mode, the browser accesses the Electronic Programme Guide provided by Exterity's avediaServer EPG module. This displays programme schedule information and allows the user to change channel.

In EPG mode, the toolbar is always off and the dimensions are set to full screen; these settings are not configurable.

To configure the EPG Server IP address:

1. Click on the **Web Services** tab.
2. Enter the IP address of the EPG server into the **EPG Server** box.
3. Click **Apply**.

Proxy servers

You can configure the receiver to use a direct connection to web pages or you can specify a proxy server to be used instead. If you use a proxy server for a general internet connection, but still want to use a direct connection for particular sites, you can specify exceptions. These sites can then be accessed by the browser without using the proxy server.

To use a direct connection to the internet:

1. Click on the **Browser** tab.
2. In the **Proxy Settings** section, select **Direct Connection**.
3. Click **Apply**.

To use a proxy server:

1. Click on the **Browser** tab.
2. In the **Proxy Settings** section, select **Manual Proxy Configuration**.
3. Enter the IP address of the proxy server into the **Proxy** box.
4. In **Port**, enter the port number to be used for internet connections on the proxy server.
5. In **No proxy for**, enter the domain name(s), separated with commas, of any sites that you want to use a direct connection for.
6. Click **Apply**.

Authentication

You can control access to the web management interface by changing the login.

To allow access to all users, click on the **Authentication** tab and select **Allow Web Access to All Users.**

To allow access only to certain users by setting a password:

1. Click on the **Authentication** tab.
2. Select **Authenticate Web Access**.
3. Specify a password and click **Apply**.

Display

The options described in this section allow you to control what the receiver displays on your screen. For example, using the web management interface, you can change the current channel and mode, or temporarily override the web page being displayed.

Various display modes are defined as follows:

- Audio/Video: default mode for TV channels
- Splash: display the splash screen
- Browser: runs the web browser navigating to the configured home page
- EPG: runs the web browser navigating to the configured EPG home page
- Playlist: plays back the files in the configured playlist in a loop
- Off: turn off all audio/video outputs to the television or display

Startup mode

You can specify the mode that the receiver always starts up in. The available options are detailed above (with the exception that **Off** is not a valid startup option.

To set the startup mode:

1. Click on the **Display** tab.
2. Select an option from the **Startup Mode** box.
3. Click **Apply**.

Current mode

You can control the current mode of operation. The available options are as detailed above.

To set the current mode:

1. Click on the **Display** tab.
2. Select an option from the **Current Mode** box.
3. Click **Apply**.

Change Channel

To set the current channel in audio/video mode:

1. Click on the **Display** tab.
2. Either select **URI** and enter the URI of the channel, or select **Item from list** and select **Current Channel** next to the desired channel in the list of channels.
3. Click **Apply**.

Note: If you are specifying the URL of a channel, use the following format:

```
<protocol>://<address>[:<port>][/<filename>]
```

Examples:

- Multicast stream (UDP or RTP): udp://239.192.0.72:5000
- onDemand playback (RTSP): rtsp://10.8.64.72:8554/football.mpg
- File playback (HTTP): http://10.8.64.72/tennis.mpg

Web pages

In browser mode, you can use the web management interface to navigate the browser to a particular page, overriding the home page.

To display a web page:

1. Click on the **Display** tab.
2. Enter a URL into the **Web page URL** box.
3. Click **Apply**. The page is displayed in the browser.

Playlist

In playlist mode, the receiver will play back the files specified in the playlist file. The playlist file is typically hosted on a web server. To configure the receiver to run a playlist, the URL of the playlist must be specified. For the format of the playlist file, see appendices at the end of this manual.

To configure the location of the playlist:

1. Click on the **Display** tab.
2. Enter a URL into the **Playlist URL** box.
3. Click **Apply**.

Remote Control

The receiver uses a configuration file to interpret codes from the remote control handset. The standard handset shipped with the device uses the type `exterity_remote_2`.

You can use a different handset to control the receiver by obtaining the correct configuration file. If you wish to use a different handset, consult a systems integrator to obtain a configuration file for that handset.

In addition to controlling on-screen menus, you can use the remote control handset to control the AV device attached to an Exterity Encoder (see **Section 4 – General Use**).

You can also disable remote control operation completely.

The functionality controlled by the menu and colour buttons can be re-configured.

The above operations are described in the following paragraphs.

To use a different remote control handset:

1. The receiver uses TFTP to download new remote control config files from a TFTP server. First ensure that the correct TFTP server IP address is specified in the **Maintenance** page, and that the TFTP server is running.
2. Save the configuration file in the following directory on the TFTP server.

   `<root>/remotes/<manufacturer>/<type>/<manufacturer>_<type>_<id>.conf`

   For example:

   `<root>/remotes/sony/dvd/sony_dvd_1.conf`
3. Click on the **Remote** tab.
4. Enter the name of the configuration file in the **Remote Control Handset Type** box.
5. Click **Apply**. The new configuration file is downloaded automatically from the TFTP server.

To allow remote device mode to be used:

1. Click on the **Remote** tab.
2. Check the box marked **Remote Device**.
3. Click **Apply**.

To disable remote control operation:

1. Click on the **Remote** tab.
2. In the **Remote Control Handset Type** box, delete the contents leaving the box empty.
3. Click **Apply**.

Button functions

As described previously, the default operation of the following buttons is as follows:

- **Menu**: Channels menu
- **Blue**: None
- **Green**: None
- **Yellow**: None
- **Red**: None
- **TV**: Audio/Video
- **Home**: Browser
- **Guide**: EPG (if available)

The functions of all these buttons can be redefined as desired by the administrator. For example, disable use of the **HOME** button to stop users using the web browser.

To redefine button functions:

1. Click on the **Remote** tab.
2. In the **Button functions** section, set button functions as appropriate.
3. Click **Apply**.

TV Control

The receiver can be configured to communicate with the attached TV/Display over the **Serial TV** interface or the **IR out** interface. The receiver can be configured to send commands to the TV on entering and exiting standby mode (whether via remote control handset or management interface), thus powering on/off the TV as appropriate. In order to use this feature, contact your Exterity supplier to obtain a serial or IR configuration file for your TV (a list of supported TV types is also available from your supplier).

Serial pass-through mode is also available. This enables the administrator to communicate directly with the attached TV. See APPENDIX F for details on how to use this feature.

Note: Serial TV control is supported only on the TriplePlay variant of the receiver. IR TV Control is supported on the standard idaptor IPTV receiver.

To enable the feature, first download the appropriate configuration file to the receiver. You can then use the receiver web interface to test sending commands to the TV and configure the particular actions to be taken on entering and leaving standby mode.

Serial TV Control

To enable serial TV control

1. Click on the **TV** tab.
2. Select the **Serial** radio button.
3. Click **Apply**.

To download a serial configuration file to the receiver:

1. The receiver uses TFTP to download new config files from a TFTP server. First ensure that the correct TFTP server IP address is specified in the Maintenance page, and that the TFTP server is running.
2. Save the configuration file in the base directory of the TFTP server.
3. Click on the **TV** tab.
4. Ensure that the **Serial** radio button is selected, and enter the name of the configuration file in the **Configuration File** box.
5. Click **Apply**. The new configuration file is downloaded automatically from the TFTP server.
6. On reloading the page, the **Test Serial Out** dropdown list will be populated if the configuration file has successfully downloaded.

To test serial TV control:

1. Click on the **TV** tab.
2. Select a command from the **Test Serial Out** dropdown.
3. Click **send**.
4. Verify that the expected action has taken place on the TV.

To configure actions to take on entering/exiting standby mode:

1. Click on the **TV** tab.
2. Enter the appropriate actions in the **Power On Actions** and **Power Off Actions** fields. These should be commands as shown in the **Test Serial Out** dropdown. Multiple commands should be separated with a semicolon (;). If a delay is required between commands, use "sleep" followed by a value in seconds. e.g. "tv_on;sleep 2;tv_mute_on".
3. Click **Apply**.

IR TV Control

To enable IR TV control

1. Click on the **TV** tab.
2. Select the **IR** radio button.
3. Click **Apply**.

To download an IR configuration file to the receiver:

1. The receiver uses TFTP to download new config files from a TFTP server. First ensure that the correct TFTP server IP address is specified in the Maintenance page, and that the TFTP server is running.
2. Save the configuration file in the following directory on the TFTP server.

   `<root>/remotes/<manufacturer>/<type>/<manufacturer>_<type>_<id>.conf`

   For example:

   `<root>/remotes/sony/tv/sony_tv_1.conf`
3. Click on the **TV** tab.
4. Ensure that the **IR** radio button is selected, and enter the name of the configuration file in the **Configuration File** box.
5. Click **Apply**. The new configuration file is downloaded automatically from the TFTP server.
6. On reloading the page, the **Test IR Out** dropdown list will be populated if the configuration file has successfully downloaded.

To test IR TV control:

1. Click on the **TV** tab.
2. Select a command from the **Test IR Out** dropdown.
3. Click **send**.
4. Verify that the expected action has taken place on the TV.

To configure actions to take on entering/exiting standby mode:

1. Click on the **TV** tab.
2. Enter the appropriate actions in the **Power On Actions** and **Power Off Actions** fields. These should be commands as shown in the **Test IR Out** dropdown. Multiple commands should be separated with a semicolon (;). If a delay is required between commands, use "sleep" followed by a value in seconds. e.g. "rm_power;sleep 2;rm_1".
3. Click **Apply**.

Encrypted Content

The receiver has the ability to decrypt encrypted content. At present this is restricted to decrypting VoD files encrypted using the SecureMedia Encryptonite system. In order to decrypt files, a SecureMedia server must be present on the network.

The receiver must be configured with the IP address of the SecureMedia server, enabling the receiver to register with the server.

To configure the details of the SecureMedia server:

1. Click on the **Encryption** tab.
2. Enter the IP address of the server in the **Address** box.
3. Enter the port number used to communicate with the server in the **Port** box (default 8082).
4. Click **Apply**.

Maintenance

This section describes various maintenance tasks. It covers:

- Restoring the receiver to factory default settings
- Rebooting the receiver
- Upgrading the receiver's firmware
- Controlling remote logging
- Storing/restoring configuration settings

TFTP server

The receiver uses TFTP to download new firmware releases, remote control configuration files and splash screens. For this to operate correctly, the receiver must be configured to communicate with the TFTP server.

To specify a TFTP server IP address:

1. Click on the **Maintenance** tab.
2. Enter the IP address of the TFTP server in the **TFTP Server** box.
3. Click **Apply**.

Restarting the receiver

You can restart the receiver at any time.

To restart the receiver, click on the Maintenance tab, select Reboot and click Apply.

Upgrading the receiver firmware

By upgrading the receiver's firmware regularly, you can ensure that you are always using the most recent receiver software.

Caution: Do not switch the receiver off while the upgrade process is running. The process takes several minutes, during which time the LED flashes slowly.

To upgrade the receiver to a new version of firmware:

1. Click on the **Maintenance** tab. Ensure that the receiver is using the correct TFTP server address.
2. Ensure that the following firmware file are hosted correctly in the root directory of the TFTP server:

   decoder.srec

3. Ensure that the TFTP server is running.
4. Select **Upgrade Firmware**.
5. Click **Apply**. The firmware file will be downloaded from the TFTP server, and the device will be upgraded. This process will take several minutes.

Note: To upgrade a V2.x unit, please refer to version 2 of this manual. If you want to upgrade a unit from V2.x to V3.x or vice versa, please contact your Exterity supplier.

Restoring factory defaults

You can return the receiver to its factory default configuration.

Note: If you restore the receiver to factory default settings, you will lose all previously saved settings. You can however restore these if you have saved your configuration, as described later in this section.

To restore the receiver factory default settings:

1. Click on the **Maintenance** tab.
2. Select the **Return to Factory Defaults** check box.
3. Click **Apply**.

Export/import configuration settings

Once you have configured the receiver, you can store your configuration settings in a single file. You can use the file to restore your settings should you need to. You can also use a saved configuration to replicate identical settings on multiple devices.

Note: Device naming and IP addressing information is not exported/imported. This means that a configuration file can be imported to multiple units.

To export configuration settings:

1. Ensure that the TFTP server is running.
2. Click on the **Maintenance** tab.
3. Ensure that the **TFTP Server** address is configured correctly (see above).
4. Enter a name for your configuration archive in the **File Name** box.
5. Select the **Export configuration** check box.
6. Click **Apply**.
7. The configuration file is uploaded to the root directory of the TFTP server.

To import configuration settings:

1. Ensure that the TFTP server is running.
2. Ensure that the configuration archive is hosted in the root directory of the TFTP server.
3. Click on the **Maintenance** tab.
4. Ensure that the **TFTP Server** address is configured correctly (see above).
5. Enter the name of the configuration archive that you are using in the **File Name** box.
6. Select the **Import configuration** check box.
7. Click **Apply**.
8. The configuration file is downloaded from the TFTP server. The receiver will then reboot.

Time server

The receiver uses NTP to maintain accurate time on the device, using the time server specified. This is useful when examining the device log file as accurate time information will be attached to log messages.

If a time server is supplied to the device by the DHCP server, this will be used if the administrator has not already specified a time server.

To specify a time server:

1. Click on the **Maintenance** page.
2. Enter the IP address or the host name of the time server in the **Time Server** box.
3. Click **Apply**.

Logging

The TVgateway saves historical information about internal events within the device to its log file. This can be useful in troubleshooting problems with the device.

The log file can be viewed through the management interface. Log messages can also be sent remotely to a syslog server.

To view the log file:

1. Click on the **Logging** tab.
2. Click the **Show log** button, resulting in the log being displayed in a new browser window.

To configure remote logging:

1. Click on the **Logging** tab.
2. Select **Local and Remote Logging**.
3. In **Syslog server**, enter the IP address or host name of the syslog server where the log files are to be stored.
4. In **Syslog port**, enter the port number on the syslog server. The default value is 514.
5. For **Remote logging level**, select an option ranging from **0-Emergency** to **7-Debug**, where 0 represents the least debug information and 7 represents the most.
6. Click **Apply**.

7 Admin Interface

In certain circumstances it may not be possible to manage a receiver via its web interface. For these situations a text based admin interface is provided which is available via the serial interface (marked admin on the rear panel of the unit) or via telnet.

See APPENDIX D for details of how to connect to the serial admin port.

Once connected, log in using username **admin** and password as for the web interface (default **labrador**).

Admin interface pages

Main page

When successfully logged in, the main page is displayed as shown below

```
                    Exterity Receiver Admin Program
          isock-vr [3.0.4] rel #2 Tue Jan 27 13:42:43 GMT 2009


     1) Show Diagnostics
     2) Show board revision details
     3) Show Network Configuration
     4) Set Network Configuration
     5) Set Admin Password
     6) Run a Shell
     7) Return to Factory Defaults
     8) Upgrade
     9) Reboot
     10) Setup VLANs
     11) Exit
```

Diagnostics pages

These pages allow the administrator to read the log file and view processes running on the device.

Board revision details

This page displays the type and revision of the device, as well as its serial number and MAC address.

Show network config

This page displays the IP addressing information of the device.

Set network config

This page allows the administrator to set the IP address of the device.

Set admin password

Allows the administrator to change the admin password for the serial and web interfaces

Run a shell

This allows the administrator to run a shell as admin.

Return to factory defaults

This page allows the administrator to set all configuration to factory defaults.

Upgrade

This allows the administrator to specify the TFTP server and initiate a firmware upgrade.

Reboot

Reboots the device.

Setup VLANs

On a TriplePlay receiver, this allows the administrator to setup VLANs on the network ports.

8 Troubleshooting

Problem	Possible Cause	Solution
Device does not appear in IPTV Manager	Network connection faulty (indicated by LED flash twice per second and on-screen message)	Check Ethernet connections or replace cable.
	Cannot obtain IP address (indicated by LED flash 4 times per second and on-screen message)	Check that DHCP server is running on network.
	PC has firewall configured, blocking SNMP traps.	Disable firewall, open UDP port 162 or configure firewall to allow traffic to IPTV Manager.
	PC has another application listening for SNMP traps.	Close down SNMP trap listener.
IPTV Manager cannot communicate with device	Network connection faulty	See above
	Device has an IP address on a different subnet to the management station	Use a management station configured with an appropriate IP address to manage the device.
	Device is upgrading (indicated by slow LED flash 2 or 3 seconds on/off	Wait for upgrade to complete
No picture on television	Incorrect AV cabling	Check cabling. For example, some SCART-phono adaptors are uni-directional.
	Video interface setting incorrect. For example, outputting RGB to a non-RGB TV.	Check video interface setting.
	The wrong TV channel is selected.	Find the appropriate TV channel for AV input.
Channel(s) missing from channels list	Network connection faulty	See above
	The head-end device(s) is/are not properly connected to the network.	Ensure the IPTV Manager can communicate with the head-end device(s) and investigate if not.
	The head-end devices(s) is/are on a different subnet from the receiver.	Reconfigure multicast routing on network.
	Groups are configured, but the head-end and receiver are not in the same group.	Correct the Groups configuration on the **Groups** tab.
Can't connect to channel ("This channel is not available")	Either receiver or head-end device are not on the network.	Ensure the IPTV Manager can communicate with the devices and investigate if not.
Blank screen when changing channel	Network port overloaded.	Ensure that network is multicast-enabled.

Video freezes	Network port overloaded.	Ensure that network is multicast-enabled.
Video continually stutters	Network port overloaded.	Ensure that network is multicast-enabled.
	Network stream from TVgateway is bursty.	Change the traffic smoothing setting.
	Network stream from third party device is bursty.	Reconfigure receiver network interface for 10 Mbits/sec.
	Ethernet configuration mismatch with switch.	If auto-negotiation is disabled on the switch port, it should be disabled on the receiver and the devices should have identical settings. If auto-negotiation is enabled on the switch port it should be enable on the receiver.
Cannot connect to URL	You are using invalid proxy settings.	Check your proxy settings on **Browser** tab.
After upgrade, the device is still running the old version of firmware.	The correct firmware files are not on the TFTP server.	Put the correct files on the TFTP server.
	The TFTP server address configured for the device is wrong	Check that the TFTP server address is the address of the machine the TFTP server is running on.
	The TFTP server is not running.	Start the TFTP server.
	The TFTP server is not configured to send files.	Fix the security settings on the TFTP server.
	The PC firewall is blocking the incoming TFTP requests.	Disable firewall or configure firewall to allow traffic to TFTP Server.

APPENDIX A Browser Development Guide

Embedding media players

Note: This section refers to the ANT Galio browser in V3.x of the receiver. If you are using the ANT Fresco browser in V2.x of the receiver, please refer to version 2 of this manual.

The syntax for embedding a video window in a web page for display with the ANT Galio browser is shown by the example below:

```
<embed type="application/x-ant-player" width=300 height=240
src="udp://239.192.0.30:1234" >
```

Options which can be used are:

- `width` defines the width of the player window
- `height` defines the height of the player window
- `src` – is the URI of the stream comprising the protocol, address and port. For the format of URI for different stream types, see the **Display** section of **Section 6 - Device Management**.
- `hidden` – Setting this to "TRUE" hides the player window, but audio will still be heard
- `fullscreen` – Setting this to "TRUE" will display full screen video regardless of the size of the browser window.

The optimum size of player window (width:height ratio) to use for different combinations of stream aspect ratio is shown below. Bear in mind that the window will have to be optimised for either widescreen or normal streams, resulting in black bars for the other stream type. Also, it is advised to use a dark background around the player window, as not all streams use the entire window resulting in a narrow black border round the picture.

Note: The sizes below assume the receiver has **Screen Format** set to **Widescreen** and is attached to a widescreen television or display.

	Normal stream	Widescreen stream
Window size	15:16 (e.g. 300x320)	5:4 (e.g. 300x240)

APPENDIX B Playlist Format

Playlist file format

A sample playlist file is shown below

```
datestamp:1000005
media:http://10.8.64.72/video/news1.mpg
media:http://10.8.64.72/video/sport1.mpg
media:http://10.8.64.72/video/news2.mpg
media:http://10.8.64.72/video/cartoon.mpg
media:http://10.8.64.72/video/film.mpg
```

APPENDIX C XML Channel List Format

Channel list format

A sample XML channel list is shown below:

```
<channel-list>
     <channel number="1">
           <name>BBC1</name>
           <multicast ip="239.192.33.61" port="5002" />
           <dvb sid="4164" />
     </channel>
     <channel number="2">
           <name>BBC2</name>
           <multicast ip="239.192.37.61" port="5003" />
           <dvb sid="4228" />
     </channel>
     <channel number="24">
           <name>BBC NEWS24</name>
           <multicast ip="239.192.32.61" port="5001" />
           <dvb sid="4415" vpid="281" apid="282" />
     </channel>
</channel-list>
```

The parameter **number** within the **channel** element is optional, as is the **dvb** element and all its parameters. Note that specifying the video pid (**vpid**) and audio pid (**apid**) will produce shorter channel change times.

APPENDIX D Admin interface connection

The serial admin interface provides the ability to manage a small subset of device functionality e.g. to configure an IP address.

Cabling

To connect to the serial interface use the female DB-9 to RJ45 adaptor supplied by Exterity (shown in Figure 6).

Figure 6 DB-9 to RJ45 serial adaptor

The female DB-9 connector should be plugged into the serial port on a PC. A straight-through network cable should be used between the RJ45 socket on the adaptor and the admin port on the Exterity device.

Note that although the cable fits, the admin port should not be connected to the Ethernet port on a PC.

Adaptor Wiring

If you do not have an adaptor you can make one using the details shown in Figure 7 and Table 3.

Figure 7 DB-9 and RJ45 connector

Table 3 Serial Pin Out

DB9 Connector Pin No	Description	RJ45 Pin No
2	TxD	8
3	RxD	2
5	GND	4

Opening a Session

Open a terminal program such as Hyperterminal (this can be found on a standard Windows PC). Set up the serial port with the following settings (see example in Figure 8):

- Baud rate: 115200
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow control: none

The program should now connect and present a login prompt if the return key is pressed.

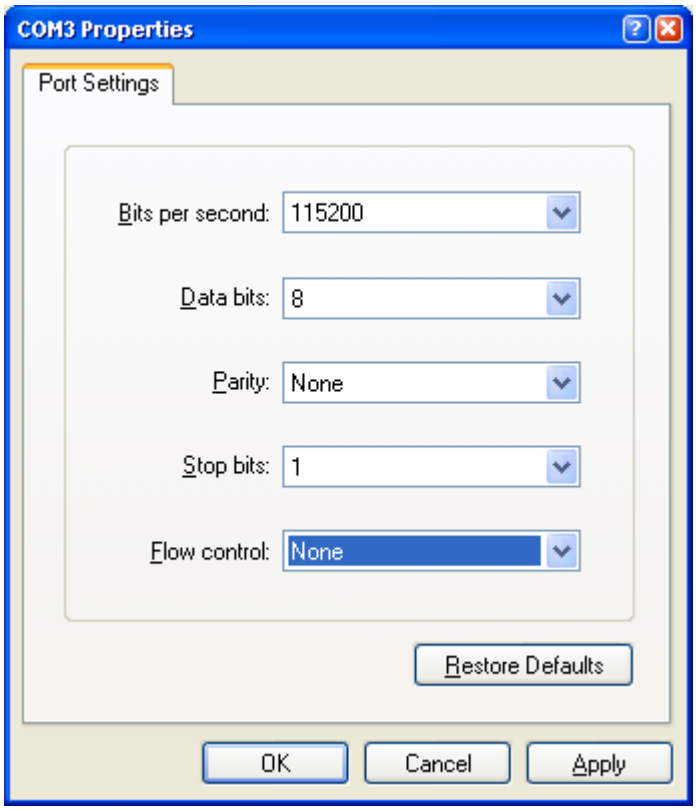


Figure 8 Serial port settings

APPENDIX E Serial TV Interface connection

The serial TV interface allows serial control of an attached television or display. The wiring of this interface is as shown below.

Description	RJ45 Pin No
TxD	8
RxD	2
GND	4

Table 4 Serial TV interface wiring

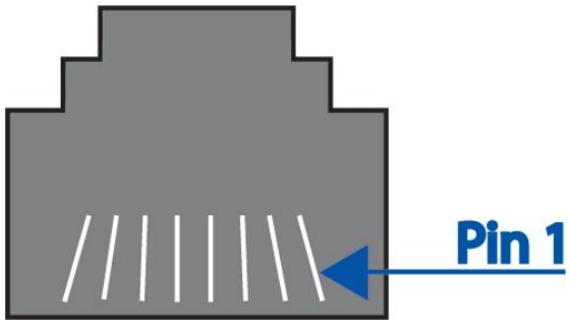


Figure 9 Serial TV Interface

APPENDIX F Serial Pass-through

To enable serial pass-through, first add a line of the following form to your serial out configuration file:

```
<telnet port="5001" enable="yes"/>
```

Then download the file to the receiver as described in Section 6 Device Management.

You can then use a telnet client to connect to the receiver's IP address on the specified port. This will give you slave line access to the attached TV.

Example:

```
<exterity>
  <tv>
     <config>
       <manufacturer name="lg" version="1" />
       <serial baud="9600" parity="none" databits="8" flow="none"
raw="no" />
       <telnet port="5001" enable="yes"/>
     </config>
  </tv>
</exterity>
```

To enable/disable serial pass-through or change the TCP port, consult the table below.

<telnet> attributes	Type	Description
Port	Integer	TCP Port to listen on
enable	yes | no	To enable or disable serial pass through.

APPENDIX G Support and contact information

Technical Support for Exterity products is provided by authorised Systems Integrators and Resellers. Please contact your Systems Integrator or Reseller with any Support issues.